



Business Case: eCampus-Based Programs System

This document develops the business case as to why SFA should pursue the redesign of Campus-Based Program application, allocation and reporting legacy system to a relational database system with a web front end for the 2001-2002 processing year, the eCampus-Based System (eCB).

Initiative Description

Summary

The Campus-Based System (CB System) enables the United States Department of Education (ED) to provide more than \$2 billion in Title IV student financial assistance funds to about 4000 post-secondary institutions each year through a complex allocation model. The system provides allocations/authorizations for grant, work-study, and loan funds to these institutions, and the institutions in turn use these funds to provide student financial assistance to more than 1,000,000 needy students each year. There are several distinct programs, each with its own legislative history and regulations, within the Campus-Based Programs. These include the Federal Supplemental Educational Opportunity Grant Program (FSEOG), Federal Work-Study Program (FWS), and Federal Perkins Loan Program (Perkins). The FSEOG program is for students with "exceptional" need (i.e. a sub-set of a school's most needy Federal Pell Grant recipients.)

CAMPUS-BASED PROGRAMS STATISTICS

TOTAL FUNDS TO INSTITUTIONS

Total: 1.9 Billion

FSEOG	691 M
FWS	1,007 M
FWS WC	4 M
Perkins FCC	100 M
Perkins TC	60 M

The CB System supports the following business processes:

1. First, and most importantly, the basis for funding/allocations and reallocation of funds to schools for needy students;
2. The Fiscal Operations Report which summarizes the Campus-Based (CB) activity for a specific award year; and
3. Finally, the Application to Participate process which enables schools to request a continuance and/or an increase in their participation under the Campus-Based programs.

In summary, the CB System calculates funding formulas, provides the basis for funding of schools for the FSEOG, FWS and Federal Perkins Loan programs. In addition, it supports the filing of the Fiscal Operations Report and Application to Participate (FISAP) via data received through EDConnect/SAIG.

Some major functions include:

- Process CB funding
- Maintain and edit FISAP data
- Calculate institutional awards
- Allocate CB funds



- Reconcile accounts and reporting
- Default reduction assistance program
- Tracking functions
- Edit processing and delivery
- Award Notification
- Secure Login

This initiative would replace the current CB application through a rewrite of the application programs to allow SFA Staff web-access, migration of the current VSAM data to a relational database system, and development of a web-based FISAP submission process. The latter would also include a web-based alternative FISAP file submission process via the Internet.

Describe the need for change (the business problem to be addressed).

This initiative would modernize the current system platform that consists of an application developed in COBOL, running on an IBM mainframe with data stored in a VSAM file structure. The application was one of the earliest systems brought on-line by SFA over 20 years ago and was originally intended to be operated for just one year. The system has been maintained by three separate contractors over this period, and due to the annual maintenance and long-term patching of the programs, there are concerns regarding the ability of the application to continue to be maintained on its current platform. Furthermore, the storage of data in its current form makes it very difficult for SFA staff and institutions to get access to information when and how they need it.

The IBM mainframe hosting the CB application is used primarily for PELL Grant processing and is currently scheduled to be retired during FY2003. Consequently, the CB application must find a new platform, or provide for the continuing operation of the IBM mainframe. In addition, the current contract for operations and maintenance (UAL) expires 6/30/01 and, due to the contract's 8a designation, will not be renewed. SFA expects to have a new contractor to succeed UAL by 2/16/01.

Therefore, the condition of the current application's code, the difficulty in accessing information and the selection of a new contractor could result in a significant risk to CB Programs and schools. On the other hand, the new, eCB system will provide a user-friendly, web-based FISAP to the schools, be much simpler to update and maintain, and provide for a much more efficient environment for the CB staff to perform their jobs, provide better support to our customers, and provide scalability.

What is the purpose of the initiative?

This initiative is designed to reduce cycle time for application processing for institutions, reduce risk from aging system, increase SFA staff access to data and analysis capabilities, provide institutions and servicers with an alternative submission option for the FISAP file and increase maintainability. It will effectively bring the CB application into today's technology, realizing the vision of the SFA Modernization, by moving it off of the mainframe scheduled for retirement, and provide efficient interaction with other relational database systems (FMS, COD, etc.)

What is the scope of the initiative, including what it is not?

The project scope will consist of analysis, design, construction and testing of the eCB System. The scope shall include:

- Participate in Focus Group sessions to validate requirements
- Re-write the current application business logic in object-oriented language:
 - Process CB funding



- Maintain and edit FISAP data
- Calculate and notify institutional awards
- Allocate CB funds
- Reconcile accounts and reporting
- Tracking functions
- Edit processing and delivery
- Award Notification
- Migration of VSAM files structure to relational database structure
- Conversion of current and historical data
- Development of web front-end to replace FISAP software:
 - Ability to enter data and save incomplete FISAPs
 - Ability to upload single or multiple school records
 - Ability to print FISAP and signature pages (will incorporate GEPA and E-Sign as appropriate)
 - Ability to validate (edit process) data before submission
 - Ability to receive acknowledgement and edit files
- Award Notification letters to schools
- Secure Login
- Award Notification letters to schools
- Ability to see and print award information (Tentative funding, Final Funding, TC Payments, and ESOAs)
- Secure school/servicer log-in based on TIVWAN/SAIG participation file
- Ability to see and print tracking information
- Web access for SFA Staff

While operating the current system, the new maintenance contractor will participate in the development of this system to allow successful transition and operation. This participation will include involvement in analysis sessions, design walkthroughs and system and intersystem testing.

The scope shall not include:

- Modifications to the EDEExpress application and/or process
- Modifications to SAIG (TIVWAN) applications and/or process

What is the start date and end date of the initiative?

The duration of the eCB initiative is November, 2000 through November 30, 2001.

What other business areas/external groups are affected by the implementation of this initiative and how are they affected?

First, the new system will interface with CFO's Financial Management System (FMS). The eCB System will feed FMS initial school funding allocations, as well as reallocations and other financial adjustments during each award year. Both the CFO and schools will be positively affected by the systems ability to greatly enhance the focus on year-end reconciliation at schools.

Equally important, the design of the relational database will positively impact the Schools Channel. Through an interface with Common Origination and Disbursement (COD), the eCB System will realize one of COD's major customer service goals -- to dramatically reduce the administrative burden placed on institutions and servicers for completing the FISAP. Specifically, institutions and servicers will have the option to submit CB student detailed records to COD. COD will aggregate this detailed data and interface with the eCB System allowing for the automatic population of the Income and Campus-Based FISAP grids,



thereby reducing errors and OMB burden hours. While COD will provide institutions and servicers the capability to submit CB student-detailed records, the eCB System will maintain its current responsibilities of determining annual allocations, receiving and analyzing FISAP data, and producing award notifications. Additionally, the navigation for the web screens is based on the Portals design to ensure a common look-and-feel of SFA Products. The new system will present institutions and servicers who have web access with an alternative to EDEExpress when transmitting FISAP data to SFA.

What systems are impacted by the implementation of this initiative and how are they impacted?

The interfaces for multiple systems will need to be created or modified including FMS, COD, and SAIG (TIVWAN). The latter is currently under consideration for modifications that could impact this effort. In addition, the design of the solution will support integration with COD, and be consistent with the guidelines of the Portals design to ensure a common look-and-feel of SFA products.

What business processes are impacted by the implementation of this initiative and how are they impacted?

The eCB System will positively impact the FMS business obligation process through the ease of an interface brought about by a common platform and thus tighter integration. In addition, the school FISAP reporting process will be impacted. Specifically, the FISAP turnaround time will be reduced significantly from the current 5 day correction processing turnaround to real-time processing (real-time relates to business processing not transmission to and from institution/servicer). In addition, institutions and servicers will have the choice of transmitting the FISAP file via a web page versus SAIG (TIVWAN). SFA staff, institutions and servicers will also have advanced reporting capabilities. Finally, as stated earlier, the design of the solution will fully complement the COD business process by reducing the burden of the income and CB grid completion requirement.

Issues & Benefits (Identified during the CB “Mad Puppy”)

- **Currently, schools are challenged with:**
 - FISAP correction processing turnaround time of 5 days
 - Transmission of FISAP file via SAIG (TIVWAN) for schools forced to utilize
 - Lack of self-service capabilities
 - Lack of analytical capabilities
 - Forced to use EDEExpress for once a year process
 - More reporting than necessary
- **Likewise, SFA is concerned with:**
 - Lack of functionality to support improved access to data for program monitoring
 - Inability to quickly respond to internal and external ad-hoc inquiries
 - Lack of integrated, user-friendly application
 - Lack of self-service capabilities resulting in poor response time
 - Lack of analytical capabilities
 - Increased risk from aging system
 - Depletion of historical knowledge through staff attrition.
 - Challenge to recruit / retain employees with expertise in antiquated technology.
- **The benefits that this solution brings are:**
 - Integration capability with the COD process
 - Support integration with enterprise portal strategy
 - Critical integration with FMS to drive CB funding
 - Intuitive web-based front-end that provides real-time edits of FISAP/correction data



- Supports alternative transmission option to SAIG (TIVWAN)
- Improved functionality and data access to increase effectiveness of program oversight
- Ability to quickly respond to internal/external inquiries
- A simpler, integrated process for looking up institution / program data
- Enhanced analytical reporting capabilities
- Facilitates the challenge to recruit and retain employees with an integrated solution using State of the Art Technology and a more streamlined business process

Demonstrate that the initiative supports the goals and objectives of SFA, how it supports these goals and objectives, to what extent it helps SFA achieve these goals and objectives and when these benefits will be realized.

- **Customer Satisfaction** (Identified during the CB “Mad Puppy”)
 - Reduced turnaround time for processing FISAP
 - Ability to validate (edit process) data before transmission
 - Ability to receive acknowledgement and edit files
 - Alternative FISAP transmission capability
 - Enhanced analytical reporting capabilities
 - Increased self-service capabilities
 - Ability to enter data and save incomplete FISAP’s
 - Ability to upload single or multiple school records
 - Ability to print FISAP and signature pages (will incorporate GEPA and E-Sign as appropriate)
 - The Award Notification letters to schools will be available via the web
- **Employee Satisfaction** (Identified during the CB “Mad Puppy”)
 - Increased effectiveness of program oversight through improved functionality and access to data
 - Ability to quickly respond to internal and external ad-hoc inquiries
 - A simpler, integrated process for looking up institution / program data will reduce the amount of stress that is now synonymous with such lookups, and will increase the time available to review and analyze data (as opposed to trying to piece it together).
 - Enhanced analytical reporting capabilities
 - Increased self-service capabilities
 - Integrated solution using “State of the Art” Technology

Provide a narrative description of the qualitative benefits or expected outcomes of implementing this initiative.

First and foremost, schools will be ensured of receiving CB funding with the implementation of the eCB System. The web-based FISAP process will greatly improve customer satisfaction to the end-user schools and institutions through its look-and-feel consistency with the SFA Schools Portals. In addition, as COD becomes a reality, schools will no longer have to endure the administrative burden of filling in a portions of the FISAP. The redesign of the current application and migration of the Campus-Based System from a VSAM storage system to a relational database system will increase customer satisfaction through the reduction of the FISAP correction processing cycle. Further, the solution will provide enhanced customer service and analytical reporting for SFA as well as Congress.

Finally, employee satisfaction will be increased by significantly improving usability through improved application functionality, improved access to data to increase effective oversight, the ability to quickly respond to internal and external ad-hoc inquiries, and increased self-service capabilities. The new system



will eliminate the reliance on contracting partners for most ad-hoc report generation, resulting in a reduction in time and costs involved. In addition, the new system will allow regional off-site access to data via the web rather than through ED-LAN and improved roll-outs and updates.



Costs

Provide a comprehensive list of costs, including those to implement the initiative and the costs to support it over its useful life.

Our analysis suggests that as a result of this initiative, SFA has the potential to reduce costs in three areas: reduced maintenance cost, increased operating efficiencies, and increased efficiencies for institutions. Each of these is discussed below.

- The eCB System should result in reduced maintenance costs as it will provide a requirements, design, and code developed in today's technology and maintained under configuration control using the Rational Tool Suite. SFA should realize savings in maintenance costs once the legacy mainframe application is retired.
- As mentioned in the previous section, the CB staff will realize increased efficiency and improved effectiveness in doing their jobs using the eCB System. These benefits are also difficult to quantify and have been excluded from our analysis.
- Finally, a cost savings will be realized by the schools, who will no longer need to go through the process of installing FISAP software each year. Since these savings accrue to the individual schools, they are not included in our analysis.

SFA has identified the following costs which are included in the System Development costs:

- \$500k for Quality Assurance (IV&V)
Based on an (IGE) Independent Government Cost Estimate of an IV&V Large Project Model with an Iterative Build & Test Approach.
- \$100k - Web Security Assessment Project Model
Based on an (IGE) Independent Government Cost Estimate of a Web Security Assessment Project Model.
- \$250k - School & SFA Staff Training
Based on SFA U training for task order #25. The training sessions will utilize Regional Training Facilities and SFA conference space.



COSTS			
<i>First-Time Implementation</i>		<i>On-Going</i>	
		On-Going Operating Costs	
FY2001 – Phase I	\$ 1,032,000	FY2001	\$ 59,034 ¹
FY2001 – Phase II	\$ 2,260,000	FY2002	\$ 708,400 ²
<u>FY2002 – Phase II</u>	<u>\$ 1,000,000</u>	FY2003	\$ 708,400 ²
System Development	\$ 4,292,000	FY2004 - FY2010 (annual cost)	\$ 708,400 ²
IV&V	\$ 500,000		
Development Environment	\$ 500,000		
Testing Environment	\$ 104,000		
Security Assessment	\$ 100,000		
<u>Training – SFA</u>	<u>\$ 250,000</u>		
Total	\$ 5,746,000		
<i>Assumptions</i>			
<u>First-Time Implementation</u>			
Includes 1020 hours of NCS (595) and UAL (425) development support of \$218,402			
<u>Transition Year Costs – FY00-01</u>			
1. \$59,034 C/S VDC costs as follows:			
Sun 3500 E server = (\$26,000 * 1 month * 4 servers)/2 apps = \$52,000			
HP 9000V DB server = (\$50,000 * 1 month * 1 server)/10 apps = \$5,000			
Compaq OLAP server = (\$6,100 * 1 month * 1 server)/ 3 apps = \$2,034			
<u>On-Going – FY02-04</u>			
2. \$708,400 C/S VDC costs as follows			
Sun 3500 E server = (\$26,000 * 12 months * 4 servers)/2 apps = \$624,000			
HP 9000V DB server = (\$50,000 * 12 months * 1 server)/10 apps = \$60,000			
Compaq OLAP server = (\$6,100 * 12 months * 1 server)/ 3 apps = \$24,400			
Server costs were provided by the VDC and include administrative and technical support.			

Cost-Benefit Analysis

Cost projections assume continued use of the mainframe for comparison of allocation results through December, 2001. Therefore, the operational costs of the mainframe are assumed through all of FY01 and for 3 months (October through December) in FY02.



CBP Cost-Benefit Analysis

Fiscal Year	2001	2002	2003	2004	2005	Total
Project Year	1	2	3	4	5	
I. NEW SYSTEM						
Analysis/Development Testing	-3,292,000	-1,000,000	0	0	0	-4,292,000
Training-SFA	-250,000	0	0	0	0	-250,000
Development Environment	-500,000	0	0	0	0	-500,000
Test Environment	-104,000	0	0	0	0	-104,000
IV&V	-500,000	0	0	0	0	-500,000
Security Assessment	-100,000	0	0	0	0	-100,000
VDC Operating Costs	-59,034	-708,400	-708,400	-708,400	-708,400	-2,892,634
WEB FISAP Maintenance	0	-200,000	-200,000	-200,000	-200,000	-800,000
Legacy Operating Costs						
Legacy CB System - VDC Operating Costs	-802,843	-200,711	0	0	0	-1,003,554
PC FISAP Maintenance	-341,000	0	0	0	0	-341,000
TOTAL eCB Costs	-5,948,877	-2,109,111	-908,400	-908,400	-908,400	-10,783,187
II. OLD SYSTEM						
Legacy CB System - VDC Operating Costs	-802,843	-802,843	-802,843	-802,843	-802,843	-4,014,215
PC FISAP Maintenance	-341,000	-341,000	-341,000	-341,000	-341,000	-1,705,000
TOTAL Legacy CB Costs	-1,143,843	-1,143,843	-1,143,843	-1,143,843	-1,143,843	-5,719,215
III. NET CASH FLOW	-4,805,034	-965,268	235,443	235,443	235,443	-5,063,972

Risks

The following outlines the primary risks associated with the implementation of the eCB System:

Risk	Potential	Impact	ED/ SFA Ability to Control	Mitigation Plan
Institutional impact on distribution of funds due to inability of new contractor to perform maintenance responsibilities.	Medium	High	High	Hire knowledge base from incumbent contractor.
Inability to meet implementation schedule for database migration and application development could impact institutions and servicers	Low	High	High	Allow current legacy system and re-platformed application to run in parallel to ensure required uptime
Insufficient performance of end-user testing.	Medium	High	High	IV&V Support.
Failure to properly communicate roles to ED/ SFA staff and provide support could hinder the implementation	Low	High	High	Detailed communication plan and involvement of ED/ SFA employees throughout the development and implementation process



Insufficient ED/ SFA staff to support parallel processes during startup	<i>Medium</i>	<i>High</i>	<i>High</i>	Detailed implementation plan that addresses staffing needs in advance
Failure to properly communicate changes to institutions/servicers/SFA Staff community may impact success	<i>Medium</i>	<i>High</i>	<i>High</i>	Detailed roll-out and training plan that addresses communication needs

Alternatives

Discuss what could be done in place of this initiative and describe the consequences of each alternative.

Alternative	Consequence
Remain as-is	The mainframe platform is supported by the PELL program and is scheduled for retirement. CB System would be solely responsible for maintaining the mainframe and/or identifying a new mainframe platform. In addition, the age and frequent patching of the code result in ever increasing maintenance cost and complexity.
Enhance an existing system	N/A
Implement on a smaller scale	Implement a portion of the solution (i.e. migration of data to relational database w/o redesign of application. This would require complex modifications of the COBOL programs to access the relational database. The solution would also need to continue to support the flat file format on the front end, and not address the concerns regarding on-going support of the application on the mainframe platform.
Other	Modernization Partner subcontracts with Universal Automation Labs (UAL) to maintain the current system through migration to the COD solution. During discussions with contracting, concerns regarding this option were raised as the SBA current administers contract is a Small and Disadvantaged Business contract and neither Accenture nor UAL (graduated) are designated as such. Therefore, this option does not appear viable.

Technology

Discuss the critical technology issues that impact: time to market and total cost of ownership.

Time to Market

What is the degree of complexity in integrating with other systems?

The integration complexity for this initiative is relatively low. The integration points are extract driven interfaces with SAIG (TIVWAN) and FMS. It is anticipated that there will be a significant level of integration with Common Origination and Disbursement process. The development team has been and plans to continue working closely with the COD team to define these requirements as we get further into both initiatives.

Has this technology been implemented at Education before? If not, is this a proven technology?



Yes. The hardware and software planned for the eCB System follows the SFA Standard Architecture Guidelines. All of the following software is either currently in the SFA ITA development environment with plans to move to the SFA ITA production environment or is currently in both the development environment and the production environment. The hardware is currently utilized in the SFA ITA production environment. These servers and software will be utilized for the Web applications, the Application Software, Database and the reporting/query software.

The following list documents the planned environment to support the eCB System:

- Sun E3500 servers used for Web Applications
- HP-UX database server used to host the Oracle 8i
- Solaris 2.6.1 operating system
- Web Server Software – IBM HTTP Server version 1.3.0.12.
- Application Software – IBM Websphere Application Server Version 3.5.2 with support for JSP 1.1.
- Database – Oracle 8i RDBMS version 8.1.6.
- JDK version 1.2.2.03.
- Microstrategy Analytical Tool

ED has or is in the process of implementing several solutions on the platforms including SFANet (Intranet) and the Enterprise Portal.

Does SFA have the technical expertise to implement this initiative?

Yes. ED has or is in the process of implementing several solutions on the platforms including SFANet (Intranet) and the Enterprise Portal.

Total Cost of Ownership

Does this technology comply with the standard technical architecture of SFA? Education? Federal Government?

Yes. As described above, the planned architecture complies with SFA standard technical architecture.

What is the level of required enhancement after implementation?

The level of required enhancement would be dependent on SFA's strategy. During Phase I, we met with the CB staff in order to identify and document their specific requirements. Although some of these requirements are beyond the scope of the initial release, the requirements were captured in the System Requirements Document, and considered in the system redesign.

What is the life span of this initiative?

The implementation is scheduled to be completed by November 30, 2001. It is anticipated that the solution will be modified significantly by the implementation of the COD solution.

TASK NAME	START	FINISH
Phase II Kick-off	Thu 2/15/01	
FISAP Web Development/Test	Thu 2/15/01	Mon 07/09/01
System	Mon 07/09/01	Wed 08/22/01



Department of Education
Office of Student Financial Assistance

Integration/Test/PRR		
FISAP Web to Production		Fri 08/31/01
Application Server Dev/Test	Mon 3/05/01	Thu 11/01/01
System	Thu 11/01/01	Fri 11/30/01
Integration/Test/PRR		
CB App. to Production		Fri 11/30/01